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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,674	05/09/2001	Akhileswar Ganesh Vaidyanathan	CL-1666USNA	3257

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EXAMINER	
LIN, JERRY	
ART UNIT	**PAPER NUMBER**
1631	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/851,674	VAIDYANATHAN ET AL.	
	Examiner	Art Unit	
	Jerry Lin	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *35-53 and 66-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35-53 and 66-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the Appeal Brief filed on September 28, 2006, PROSECUTION IS HEREBY REOPENED. New grounds of rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 35-53 and 66-68 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The instant claims are drawn to mathematical algorithm for identifying patterns in a sequence of symbols.

4. In regards to claims 35-53 and 68, the instant claims are drawn to the judicial expectation of a mathematical algorithm. A judicial expectation is non-statutory unless it includes practical application of the judicial exception. For the claims to have a practical application, the claims must include a step of physical transformation, or the claims must include a useful, tangible and concrete result. It is important to note, that the claims themselves must include a physical transformation step or a useful, tangible and concrete result in order for the claimed invention to be statutory. It is not sufficient that a physical transformation step or a useful, tangible, and concrete result be asserted in the specification for the claims to be statutory. In the instant claims, there is no step of physical transformation, thus the Examiner must determine if the instant claims include a useful, tangible, and concrete result.

In determining if the instant claims are useful, tangible, and concrete, the Examiner must determine each standard individually. For a claim to be "useful," the claim must produce a result that is specific, substantial, and credible. For a claim to be "tangible," the claim must set forth a practical application of the invention that produces a real-world result. For a claim to be "concrete," the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. Furthermore, the claim must recite a useful, tangible, and concrete result in the claim itself, and the claim must be limited only to statutory embodiments. Thus, if

the claim is broader than the statutory embodiments of the claim, the Examiner must reject the claim as non-statutory.

The instant claims do not include a result that is necessarily useful or a result that is tangible. For a result to be useful, the claim must produce a result that is specific, substantial, and credible. The instant claim does not produce a result that is substantial. According to the MPEP §2107.01 (I) (B), "[A] 'substantial utility' defines a 'real world' use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a 'real world' context of use are not substantial utilities." In the instant case, the claims are drawn to a method of discovering patterns in alphabetic symbols that represent other things. However, it is unclear how discovering patterns will necessarily create a result with a real world context of use. For example, the instant invention may be used to determine the number of times the letter "a" appears in a newspaper. It is unclear how discovering this pattern provides a substantial utility. Furthermore, according to the MPEP §2106 (IV) (C) (2) (a), "[If} the claim is broader than the disclosure such that is does not require a practical application, then the claim must be rejected." As in the example above, the claims include embodiments with results that are not substantial. Since the results are not necessarily substantial, the instant claims do not require results that are useful and thus do not require a practical application. Claims that do not require a practical application must be rejected as in the instant case.

The tangible requirement requires that the claim must set forth a practical application of the mathematical algorithm to produce a real-world result. The final step

in the instant claims is a step of defining the patterns. However, the final step does not necessarily require that a final pattern be found. Thus, the instant claims do not necessarily include a real-world result. Furthermore, the instant claims do not communicate the result to a user. Thus the instant claims do not include any tangible result.

5. It is noted that instant claims 66 and 67 are drawn to data structures. The instant claims recite how the data is organized in a computer readable medium. Claims 66 includes a master offset table data structure, a k-tuple table data structure, and a sorted k-tuple table data structure. It is noted that data structures embodied on a computer readable medium may be statutory if the data structure defines structural and functional interrelationships between the data structure and computer software and hardware components which permit the data structure's functionality to be realized. In the instant case, the data structure recited does not define any interrelationships between data structure and computer software. The instant claims only recite how the data is organized into three types of tables. Since the instant claims do not provide the interrelationships between the data structure and the computer, the tables in instant claims 66 and 67 are non-functional descriptive material. Non-functional descriptive material is non-statutory even if it is embodied on a computer readable medium.

6. Regarding claim 68, the instant claims are drawn to a computer readable medium with the instructions to perform the method of claim 35. However, as stated

above, the method of claim 35 does not require a useful or tangible result and is not a practical application of a judicial exception. Thus instant claim 68 also does not include a practical application of a judicial exception.

7. Regarding claim 35-53 and 66-68, the instant claims are also non-statutory because the instant claims preempt a mathematical algorithm (i.e. an abstract idea). The instant claims are drawn to finding patterns in symbols. These symbols may represent themselves or other objects. However, according the MPEP §2106 (IV) (A), "one may not patent every 'substantial practical application' of an idea, law of nature, or nature phenomena. . . ." In the instant case, the applicants acknowledge that the symbol may represent anything including the symbols themselves (Appeal Brief, filed September 28, 2006, page 11). Thus, the applications are seeking to patent an abstract idea for finding patterns in any set of objects of any set of symbols. Such a patent would be a patent in practical effect on the idea itself. Therefore the instant claims are non-statutory.

Response to the Appeal Brief

8. Although the Examiners has changed the grounds of rejection, the Examiner will attempt to respond to the Applicant's arguments that may be relevant to the rejection above.

The applicants first argue that the instant claims provide the identification of patterns of symbols that is sufficiently useful, tangible and concrete. However, it is not

sufficient that the claims may include results that are useful, tangible and concrete, the claims themselves must include a useful, tangible and concrete result. As it is explained above, the instant claims do not include a useful, tangible and concrete result. If the claims include embodiments that do not require useful, tangible and concrete results, the claims must be rejected.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Califano (US 5577249 A).

That data structure and its intended use, as in instant Claims 66 and 67, is considered to be "non-functional descriptive" material, for the reasons stated above.

All limitations of this type of data structure are given no patentable weight, as they are non-functional descriptive material. The patentable weight given to the limitations of claims 66 and 67 are limited to any type of computer-readable medium storing any type of data structure.

Califano teaches storing information associated with each sequence tuple as an array "data look-up structure" in a computer "hard disk" (a computer-readable medium)

(see column 9, lines 14-30). Califano renders obvious the computer readable format containing the data structures of claims 66 and 67.

Response to the Appeal Brief

11. The Applicants have argued that the limitations recited in claim 66 clearly distinguishes the claimed data structure from Califano. However, as stated above, the limitations recited in claim 66 and 67 are not afforded patentable weight because the data structures in claim 66 and 67 are non-functional descriptive material. Since the data structures are not afforded patentable weight, instant claims only recite a computer readable medium which is rendered obvious by Califano.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Lin whose telephone number is (571) 272-2561. The examiner can normally be reached on 10:00am-6:30pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Representatives are available to answer your questions daily from 6 am to midnight (EST). When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center at (800) 786-9199.

MICHAEL BORIN, PH.D
PRIMARY EXAMINER

JL

ANDREW WANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600